



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/674,930  
Filing Date: September 30, 2003  
Applicant: Terry L. Schneider  
Group Art Unit: 1774  
Examiner: Merrick Dixon  
Title: POLYMER COMPOSITE STRUCTURE REINFORCED  
WITH SHAPE MEMORY ALLOY AND METHOD OF  
MANUFACTURING SAME  
Attorney Docket: 7784-000553/CPB

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**PRE-APPEAL STATEMENT**

Claims 1-34 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Paine et al. (U.S. Pat. No. 5,614,305) in view of Chiou et al. (U.S. Pat. No. 5,369,163). This rejection is respectfully traversed.

Paine et al. is directed to a multi-layer stack of polymer plies that are reinforced with SMA fibers 8 (Figure 2). This reference does not make any mention of using SMA "particles," but only of using SMA "fibers" in the construction of a multi-layer polymer composite material. Paine et al also does not make any mention or provide any suggestion as to the desirability or motivation of using SMA particles, or even SMA fibers, in a composition such as paint or a protective coating.

Chiou et al. discloses a process for preparing large-dimension emulsion polymer particles, apparently ranging in shape from egg-like through rod-like, up to extended filaments. There is no mention or suggestion in this reference that these particles are SMA particles, let alone of the desirability of using SMA particles in a paint or other form of protective coating to increase the impact strength of the paint or protective coating. Conversely, there is no suggestion in Paine et al. of using any type of egg-like or rod-like particle, as may be disclosed in Chiou et al, in the multi-layer composite structure shown in Paine et al. Paine et al. simply does not even appear to disclose or suggest the use of any type of impact strength increasing particle, but rather limits the disclosure of the SMA elements to SMA fibers, and only in a composite structure such as a multi-layer panel.

#### **No Motivation to Combine Teachings**

An important consideration that should not be overlooked in deciding the issue of whether the pending claims are obvious is that there would be no apparent benefit to using particles instead of fibers in the multi-layer component disclosed in Paine et al. In fact, such a change would appear likely to actually reduce the overall impact strength of the component, as compared to what could be achieved with continuous, elongated length SMA fibers. Thus, there would not be any motivation on the part of one skilled in this art to combine the teachings of the cited references as the Examiner has done in the present application. Chiou et al is also silent on using SMA particles in any type of paint or protective coating.

### **Hindsight Reconstruction of References**

It is respectfully submitted that the teachings of the Paine et al. and Chiou et al. references have been combined in hindsight using the Applicant's own disclosure as a road map. There must be some desirability or motivation in one or the other of the references to make the combination cited by the Examiner. No such motivation or desirability would exist on the part of one of ordinary skill in this art, in this instance. In fact, using SMA particles instead of elongated fibers may actually work to reduce the strength of the multi-layer polymer material of Paine et al. The fact that Chiou et al shows the use of egg-shaped particles and rod-like particles, would not motivate one to use SMA materials to form these particles, and to use the SMA particles in the multi-layer panel of Paine et al. Such would likely produce a panel that is inferior in impact strength to a multi-layer panel formed with continuous length elongated fibers as Paine et al discloses.

For these reasons, it is believed that the desirability and motivation to combine the teachings of the Paine et al. and Chiou et al. references, as the Examiner has done, would only come to one skilled in the art after reviewing the disclosure that forms the present application.

### Conclusion

In view of the foregoing, it is submitted that the pending claims would not be obvious in view of the combination of the Paine et al and Chiou et al references. Withdrawal of the rejections of Claims 1-36 is thus most respectfully requested.

Respectfully submitted,

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By:   
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